REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 2, 4-26, and 28-30 are pending in the present application, Claims 1, 4, 5, 10, 28, and 29 having been amended. Support for the amendments to Claims 1, 4, 5, 10, 28, and 29 is found in the specification and no new matter is added.

In the outstanding Official Action, Claims 4, 5, 13, 28, and 29 were objected to; Claims 1, 2, 4-26, and 28-30 were rejected under 35 U.S.C. §112, first paragraph; Claims 1, 2, 4, 5, 13-26, and 28-30 were rejected under 35 U.S.C. §102(e) as anticipated by Manjuanth et al. (U.S. Patent No. 6,332,030); Claim 6-9 were rejected under 35 U.S.C. §103(a) as unpatentable over Manjunath; and Claims 10-12 were indicated as including allowable subject matter.

Applicants thank the Examiner for the courtesy of an interview extended to Applicants' representative on June 8, 2006. During the interview, differences between the present invention and the applied art, and the rejections noted in the outstanding Office Action were discussed. No agreement was reached pending the Examiner's further review when a response is filed. Arguments presented during the interview are reiterated below.

Applicant thanks the Examiner for the indication of allowable subject matter.

With respect to the objection to Claims 4, 15, 13, 28, and 29, Claims 4 and 15 are amended to depend from Claim 2, and Claims 28 and 29 are amended to depend from Claim 21. Accordingly, Applicants respectfully submit that the objection to Claims 4, 15, 13, 28, and 29 is overcome.

With respect to the two grounds of rejection of Claims 1, 2, 4-26, and 28-30 under 35 U.S.C. §112, first paragraph, Applicant respectfully submits that the present amendments to the claims overcome this ground of rejection.

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With respect to the claimed "inverse transformer," the present amendment clarifies that the inverse transformer performs an inverse transformation. Thus, Claim 1 recites, *inter alia*, "an inverse transformer configured to perform an inverse transformation...." The outstanding Office Action indicates that the Examiner is unsure whether transformation is a forward transformation or an inverse transformation. Applicants respectfully submit that amended Claim 1 clearly indicates that the transformation is an inverse transformation. Moreover, Applicants respectfully submit that a person of ordinary skill in the art is enabled by the present specification to practice the claimed invention.

With respect to the claimed "audio material," the present amendment changes "audio material" to "audio/visual material." Support for this amendment is found in the specification at page 1, line 7, which states "...material includes at least one *or more* of image material...audio material" (emphasis added). As audio/visual material contains both audio and video data, Applicant respectfully submits that audio/visual material contains pixels.

Accordingly, Applicants respectfully submit that the rejections under 35 U.S.C. §112, first paragraph, are overcome. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually satisfactory claim language.

In addition, Claim 10 is amended to correct an antecedent basis informality.

With respect to the rejection of Claim 1 as anticipated by Manjunath, Applicant respectfully traverses the rejection. Claim 1 recites

> An apparatus comprising:
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> an inverse transformer configured to perform an inverse transformation, such that transform domain watermark data comprising a plurality of transform domain coefficients is inverse transformed into spatial domain watermark data comprising a plurality of spatial domain pixels which form spatial domain watermark data; and

> a combiner for receiving material in the spatial domain,
> the material comprising a plurality of spatial domain pixels and
> combining the pixels of said spatial domain watermark data
> with the spatial domain pixels of said material in the spatial
> domain to form watermark data embedded material.

Manjunath does not describe or suggest Claim 1.

Claim 1 clearly requires that the inverse transformer perform an inverse transformation that transforms water mark data, which is in the transform domain, into the spatial domain to form spatial domain watermark data. Manjunath discloses that a signature image is subjected to a DCT operation, which converts the signature image to the transform domain. Throughout Manjunath, and specifically at col. 6, lines 44-47, col. 10, lines 52-54, col. 13, lines 14-17, col. 13, lines 43-45, col. 15, lines 3-5, and col. 16, lines 47-50, describes that embedding occurs in the transform domain.

In a non-limiting embodiment of the claimed invention, the material, which is in the spatial domain, is not subject to any transformation at all. The watermark data, initially in the transform domain, is transformed into a spatial domain watermark data. The spatial domain watermark data and the spatial domain material are combined in the spatial domain. Accordingly, one less transformer is required than the prior art approach. Thus, complexity and cost is reduced.[1]

On the contrary, Fig. 15 of Majunath requires two transformers: a DCT transformer to transform the signature image into the transform domain, and the IDCT transformer to transform the fused coefficients back to the spatial domain.

Manjunath does not disclose or suggest "an inverse transformer configured to perform an inverse transformation, such that transform domain watermark data comprising a plurality of transform domain coefficients is inverse transformed into spatial domain watermark data comprising a plurality of spatial domain pixels which form spatial domain watermark data."

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[1] Specification, page 2, lines 19-23.

Furthermore, with respect to the position taken during the above-noted interview that transformation can be any change in data, even a change modifying spatial domain data into spatial domain data, Applicants respectfully submit that the amendment to Claim 1 precludes such an interpretation. Amended Claim 1 recites "transform domain watermark data…is *inverse transformed* into spatial domain watermark data." As understood by a person of ordinary skill in the art, and as used in the specification, an inverse transformation is not merely any change in data.

Furthermore, Applicants respectfully submit that the attached document provides a brief description of the term "spatial domain" as it would be understood by a person of ordinary skill in the art.

Paragraph 4 of the attached document states "In most cases, the Fourier Transform will be used to convert images from the spatial domain into the frequency domain." This means that, as the Fourier Transform converts the spatial domain image into a frequency domain image (which is one type of transform domain image), a person of ordinary skill in the art would appreciate that a conversion has to take place to transform a spatial domain image into any transform domain image. Therefore, it is respectfully submitted that the term "spatial domain" would *not* be understood as encompassing the term "transform domain."

It is well established that while the PTO is to give claim language its broadest "reasonable" interpretation, but this does not mean that the PTO can completely ignore the understanding that the artisan would have of the terms "spatial domain" and "transform domain" obtained in light of the specification so as to ascribe a completely different meaning to "spatial domain" and "transform domain." See In re Cortright, 165 F.3d 1353, 1358, 49 USPQ 2d 1464, 1467 (Fed. Cir. 1999). ("Although the PTO must give claims their broadest reasonable interpretation, this interpretation must be consistent with the one those skilled in the art would reach.") and In re Okuzawa, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA

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1976) citing <u>In re Royka</u>, 490 F.2d 981, 984, 180 USPQ 580, 582-83 (CCPA 1974) ("Claims are not to be read in a vacuum, and while it is true they are given the broadest *reasonable* interpretation during prosecution, their terms still have to be given the meaning called for by the specification of which they form a part.").

In view of the above-noted distinctions, Applicants respectfully submit that Claim 1 (and Claims 2, 4-20) patentably distinguish over <u>Cox</u>. In addition, Applicants respectfully submit that amended Claim 21 is similar to amended Claim 1. Accordingly, Applicants respectfully submit that amended Claim 21 (and Claims 22-26 and 28-30) patentably distinguish over <u>Cox</u>, for at least the reasons stated for Claim 1.

With respect to the use of Official Notice in the outstanding Office Action, Applicant notes that Official Notice may be taken for facts outside of the record which are capable of instant and unquestionable demonstration as being "well-known" in the art. *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). As set forth in MPEP § 2144.03, if an Applicant traverses an assertion made by an Examiner while taking Official Notice, the Examiner should cite a reference in support of their assertion.

In addition, Applicant respectfully traverses those grounds for rejection relying of Official Notice. Applicants do not consider the features for which Official Notice were taken to be "of such notorious character that official notice can be taken." Therefore Applicants traverse this assertion. "The examiner should cite a reference in support of his or her position."[2]

Furthermore, with respect to U.S. Patent No. 5,933,798, which the Examiner asserted during the above-noted interview as anticipating the independent claims, Applicants note that U.S. Patent No. 5,933,798 does not disclose that a transformation from the "transform domain" to the "spatial domain" takes place. On the contrary, all that is disclosed in U.S.

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[2]MPEP 2144.03, page 2100-129, left column, second full paragraph of MPEP 2144.03.

Patent No. 5,933,798 are filters, which are in the spatial domain. It is noted that col. 4, lines

35-50 of U.S. Patent No. 5,933,798 discloses that the filters may work in other domains.

However, there is not disclosure or suggestion that a filter transforms data from one domain

to another domain. The filters merely filter signals in *either* a spatial or other domain.

Consequently, in light of the above discussion and in view of the present amendment,

the present application is believed to be in condition for allowance and an early and favorable

action to that effect is respectfully requested.

Respectfully submitted,

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Spatial Domain

For simplicity, assume that the image I being considered is formed by projection from scene S (which might be a two- or three-dimensional scene, *etc.*).

The *spatial domain* is the normal image space, in which a change in position in I directly projects to a change in position in S. Distances in I (in pixels) correspond to real distances (*e.g.* in meters) in S.

This concept is used most often when discussing the frequency with which image values change, that is, over how many pixels does a cycle of periodically repeating intensity variations occur. One would refer to the number of pixels over which a pattern repeats (its periodicity) in the spatial domain.

In most cases, the Fourier Transform will be used to convert images from the spatial domain into the frequency domain.

A related term used in this context is *spatial frequency*, which refers to the (inverse of the) periodicity with which the image intensity values change. Image features with high spatial frequency (such as edges) are those that change greatly in intensity over short image distances.

Another term used in this context is *spatial derivative*, which refers to how much the image intensity values change per change in image position.